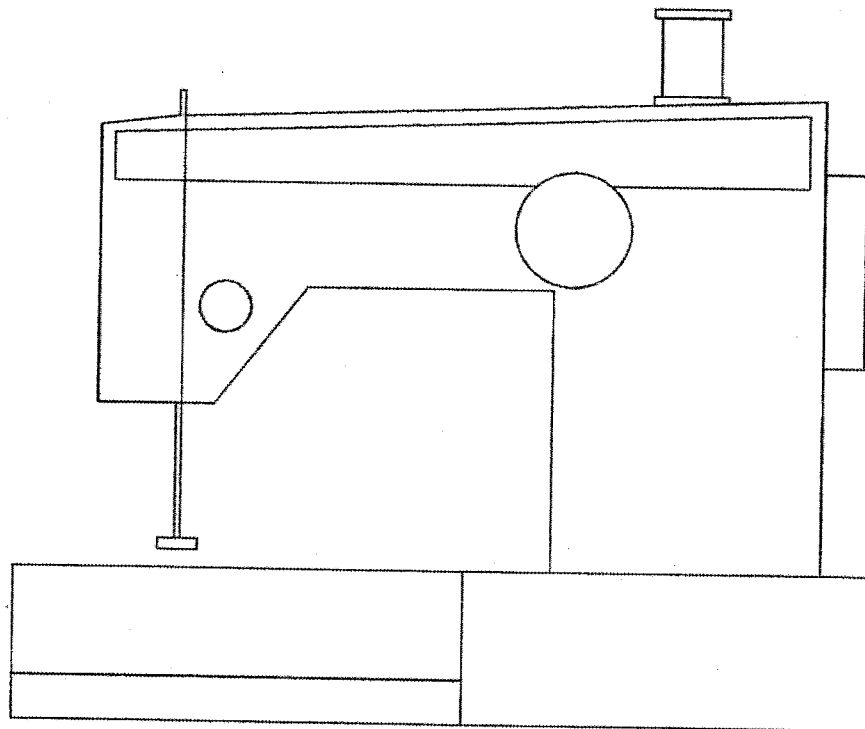


Instructions for Using Singer Sewing Machine, Model #221



#SR-221



MOTOR CAN BE OPERATED ON EITHER ALTERNATING CURRENT OR DIRECT CURRENT

The electric motor, which is located at the back of the machine, can be operated on either alternating current or direct current as desired. The standard windings of the motor are for operation on alternating current of 115-125 volts,

25 to 75 cycles, or on 115-125 volts direct current.

Motors for 32 volts direct current, and for 50 volts alternating current and direct current, have also been developed and are available on special request.

TO CONNECT THE MACHINE TO ELECTRIC SERVICE LINE

Slide the foot controller to the right out of its holder in the lid of the carrying case and unwind the electric cord furnished with the machine. Push the terminal plug at one

end of the electric cord as far as it will go on the three-pin terminal block at the right of the machine. Attach the plug at the other end of the cord to the nearest electric outlet.

Place the foot controller in a convenient position on the floor and the machine is ready for operation.

CAUTION

When you have finished your sewing, always disconnect the plug from the electric supply point.

LIGHT

To turn light "on" or "off", a switch is conveniently located on the light at B2, Fig. 3.

To remove lamp. Do not attempt to unscrew lamp. Press it into socket and at same time turn it over in direction shown in Fig. 5 to unlock pin A. Then withdraw lamp.

To replace lamp. Press new lamp into socket with pin A, Fig. 4 entering slot

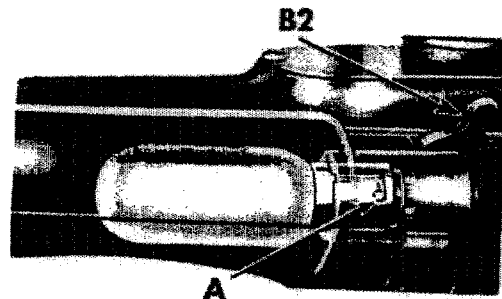


Fig. 3. Replacing the Lamp

of socket and turn it over in direction shown in Fig. 5 to lock pin A in position.

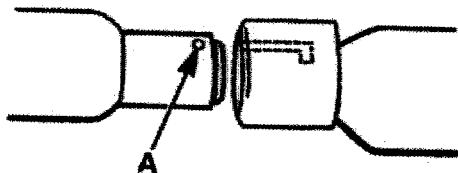


Fig. 4

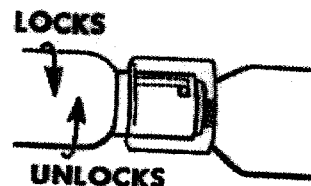


Fig. 5

To reach the parts underneath the bed of the machine, turn the machine over on its rear side. Remove the thumb nut and felt washer from the screw E, Fig. 31, at the centre of the large cover plate underneath the bed of the machine and remove the cover plate. Apply oil to the oil holes and bearings indicated in Fig. 31, and occasionally apply a small quantity of Motor Lubricant to the teeth of the gears D, Fig. 31, then replace the bed cover plate and fasten it as before with the thumb nut

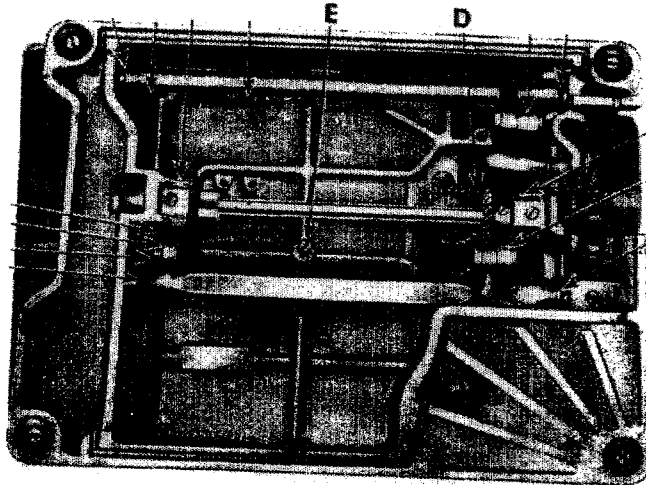


Fig. 31. Oiling Points at Base of Machine

and felt washer, being careful not to turn the thumb nut too tightly.

At least once every six months thereafter, these grease tubes should be re-filled with Motor Lubricant. To do this, insert the tip of the motor lubricant tube into the hole of each of the grease tubes and force the lubricant through each hole until both grease tubes are filled.

TO LUBRICATE THE MOTOR

When the machine is shipped from the factory, the two motor grease tubes A, Fig. 32, are filled with sufficient

Motor Lubricant for approximately six months' use, under ordinary circumstances.

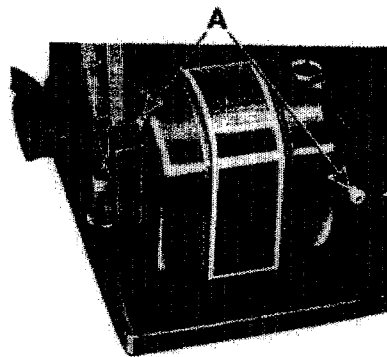


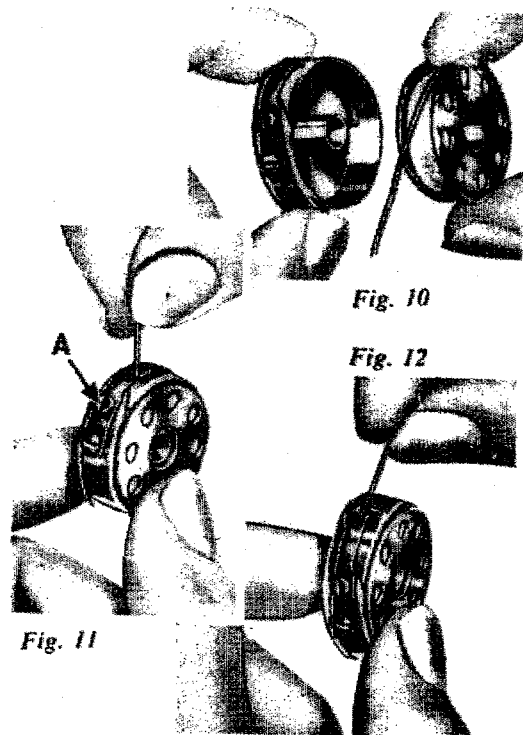
Fig. 32. Motor Grease Tubes

TO THREAD THE BOBBIN CASE

Hold bobbin between thumb and fore-finger of right hand, with thread on top drawing from right to left, as shown in Fig. 10.

With left hand hold bobbin case as shown in Fig. 10, slot in edge at the top. Place bobbin into bobbin case.

Then pull thread into slot as shown in Fig. 11, and under tension spring into slot at end of tension spring as shown in Fig. 12.



TO REPLACE THE BOBBIN CASE

Hold bobbin case by latch with thread extending from top of bobbin case over hand.

Place the bobbin case on the centre stud A, Fig. 13.

Release the latch and press the bobbin case back until the latch catches the groove near the end of the stud. Allow about three inches of thread to hang free from the bobbin case and turn down the bed extension.

CAUTION—If throat plate B, Fig. 13 is removed for cleaning the stitch-forming mechanism, etc., make certain when replacing the throat plate, that the position finger A2 of the bobbin

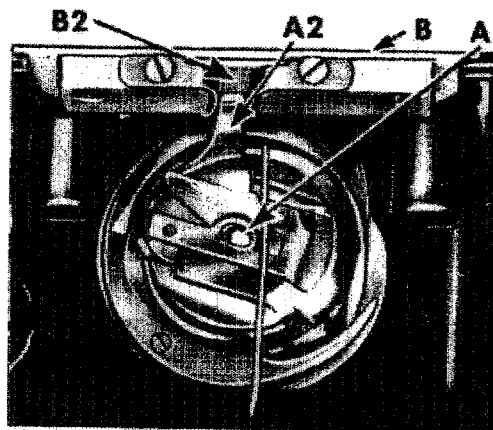


Fig. 13. Bobbin Case Threaded and Replaced

case base enters the notch B2 of the position plate attached to the underside of the throat plate.

Next place the numbered dial on the stud so that the numeral 2 is opposite the stop washer extension, then push the dial to compress the spring so that the thumb nut can be turned on to the stud, carefully guiding the pin in the thumb nut into one of the holes of the numbered dial. Then lower the presser bar and turn the thumb nut **B** to the left until it stops at "0". Thread the tension and pull the thread through the tension discs to test the amount of tension on the thread at the "0" position. At this point there should be a slight pull on the thread to indicate that there is a minimum tension, which gradually increases with the turn of the thumb nut to the right, providing a full range of tensions from light to heavy within one revolution of the thumb nut. If the pull is too strong for a minimum tension, press in the numbered dial to

disengage the pin in the thumb nut from the dial, and reset the pin in one of the holes to the **left** of the previous setting. This resetting of pin will produce less tension at zero. Repeat this process until minimum desired tension is obtained.

On the other hand, should there be no tension at zero, press in dial and reset pin in one of the holes to the **right** of previous setting, repeating this process until a slight minimum tension is obtained.

The tension on thread take-up spring **T**, **Fig. 26, page 8**, should be just sufficient to take up the slack of needle thread until eye of needle reaches the goods in its descent.

If the tension on thread take-up spring requires adjustment, remove tension disc assembly, disengage end of spring from groove in tension stud, revolve

spring and place its end in groove which produces correct tension.

IF CORRECT STITCHING IS NOT OBTAINED

If bobbin thread tension has been disturbed, or a correct stitch cannot be obtained without a very heavy or very light needle thread tension, then the following procedure is recommended:

Using No. 50 thread in the needle and on the bobbin, adjust needle thread tension as instructed above

Then turn the tension thumb nut to "4" and sew two thicknesses of thin material in machine to check if the stitch is correctly locked in the material as shown in **Fig. 20, page 7**. Adjust bobbin thread tension as instructed on **pages 7 and 8** until correct stitch is obtained.

A wide range of materials and threads can now be accommodated without further adjustment of bobbin thread tension.

TO TURN A CORNER

Pivot on the eye of the needle. Stop machine when needle is in this position. Raise presser foot and turn work as desired, then lower presser foot and resume sewing.

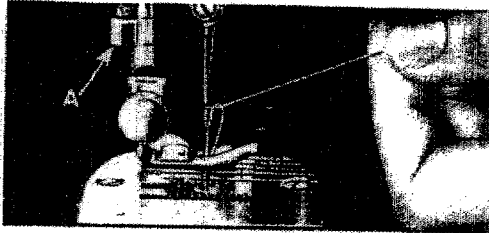
TO REMOVE THE WORK

Stop the machine with the thread take-up lever **6, Fig. 15, page 4**, at its highest position, raise the presser foot and draw the fabric back and to the left, pass the threads over the thread cutter **A, Fig. 16, page 5**, and pull down lightly to sever them. Place ends of threads under presser foot, as shown in **Fig. 17, page 5**.

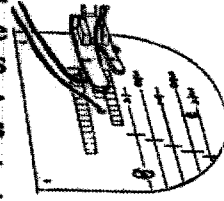
TO PREPARE FOR SEWING

Hold end of needle thread with left hand and turn hand wheel over toward you until needle moves down and up again to its highest point.

Pull up needle thread and bobbin thread will come up with it, as shown in Fig. 16. Lay both threads back under presser foot, diagonally across feed, as shown in Fig. 17, to right or left, depending upon which side of needle material is to be located, so that when presser foot is lowered, threads will be held firmly between feed and presser foot.



NOTE: Distinct markings on throat plate are to guide edges of seams and hems. These markings, at $\frac{1}{4}$ " intervals from $\frac{1}{4}$ " to $\frac{3}{4}$ " in distance from right of needle, assist in guiding



fabric uniformly. Crosslines on throat plate indicate when the needle has reached the pivot point when turning square corners.

TO START SEWING

Be sure to have thread take-up lever 6, Fig. 15, page 4, at its highest point. Place material beneath presser foot B, Fig. 18, page 5. Turn hand wheel to bring point of needle into fabric and then lower the presser foot. Press con-

Fig. 16. Drawing up Bobbin Thread

troller pedal to start machine. The speed depends upon amount of pressure on controller pedal.

Most materials require only guiding for best results. However, the miracle fabrics such as nylons, dacrons, orlons, blends with various rayons, puffed weaves, sheers, jerseys and tricots, which, by their nature, require light pressure, also require support in the form of holding the material taut at the back and front of the needle as the needle enters the fabric. This support assures a smooth even seam.

Never pull the material when sewing.

When sewing thick material, or if machine stops when sewing across a thick seam, turn the hand wheel over toward you to start the machine.

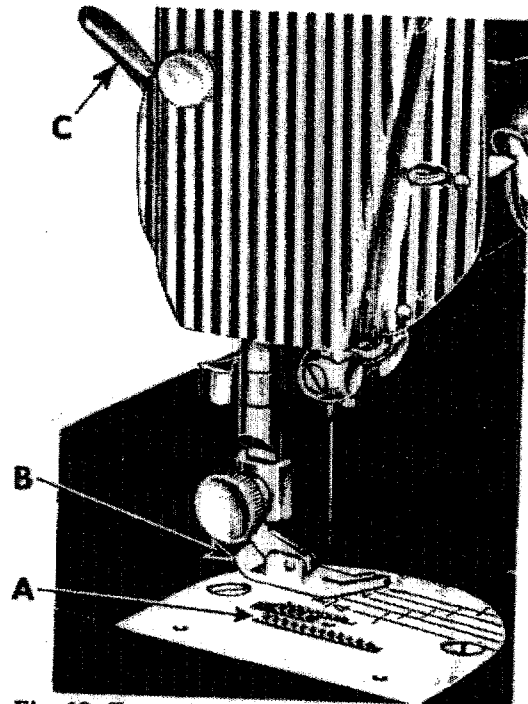


Fig. 18. Front View of the Machine

TENSIONS

For ordinary stitching, the needle and bobbin threads should be locked in the centre of the thickness of the material, thus:



Fig. 20. Perfect Stitch

If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material, thus:



Fig. 22. Loose Needle Thread Tension

If the tension on the needle thread is too tight, or if that on the bobbin thread is too loose, the needle thread will lie straight along the upper surface of the material, thus:



Fig. 21. Tight Needle Thread Tension

TO REGULATE THE NEEDLE THREAD TENSION

The tension on the needle thread can be tested only when the presser foot is down.

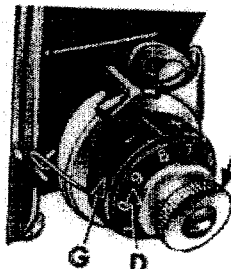


Fig. 23
Needle Thread
Tension

The numbered dial **D**, Fig. 23 is marked with arbitrary numbers ranging from 0 to 9 which indicate different degrees of tension that can be produced. The numbers do not denote a particular size of thread. By noting the number which is opposite the centre line between the plus and minus signs on the indicator **G** when set for a satisfactory tension on the work being stitched, the number can be readily reverted to when a change is made in the tension or size of thread.

To increase the tension, turn the thumb nut **B** over to the right until the desired number on the numbered dial

D is opposite the centre line, the highest numbers denoting increased tension. To decrease the tension, turn the thumb nut **B** over to the left, the lower numbers indicating less tension. The tension indicator **G** is marked with the signs + and -, which also indicate the direction in which to turn the thumb nut **B** for more or less tension.

TO REGULATE THE BOBBIN THREAD TENSION

The tension on the bobbin thread is regulated by the screw **A**, Fig. 11, page 3, which is nearest the centre of the tension spring on the outside of the bobbin case. To increase the tension, turn the screw **A** over to the right. To decrease the tension, turn this screw over to the left.



HINTS

See that the needle is not bent, and avoid pulling the material when stitching. Breaking of Needle Thread. If the needle thread breaks it may be caused by:

- A knot in thread.
- Improper threading.
- Tension too tight.
- Thread too coarse for size of needle.
- Needle bent, or blunt, or set incorrectly.

Breaking of Bobbin Thread. If the bobbin thread breaks, it may be caused by:

- Improper threading of bobbin case.
- Tension too tight.

Skipping of Stitches. The needle may not be accurately set into the needle clamp or the needle may be blunt or bent. The needle may be too small for the thread in use.

Belt. See that the belt has the correct tension. The tension should be only enough to keep the belt from slipping. If the belt tension is incorrect, loosen the screw C, Fig. 9, page 2, about one turn and allow the motor to drop down-ward until the belt has the correct tension, then tighten the screw C.

Machine Working Heavily. If the machine runs hard after standing idle for some time, use a little kerosene in the oiling places, run the machine rapidly then wipe clean and oil.

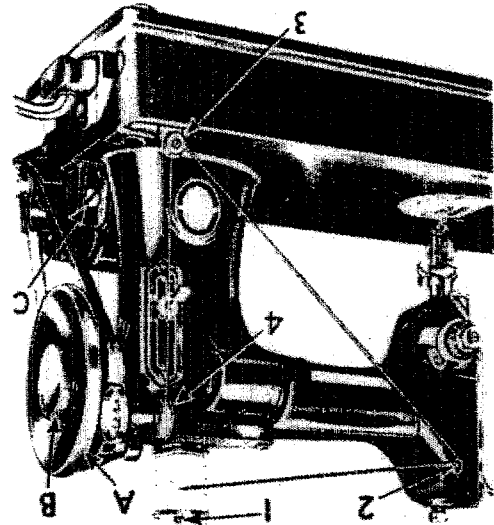
To Avoid Breaking the Needles. See that the presser foot or attachments are securely fastened by the thumb screw. Do not sew heavy seams or very thick fabric with too fine a needle. A large needle and thread to correspond should be used on heavy work.

CHART SHOWING THE RELATIONSHIP OF TYPES OF FABRICS, THREAD AND NEEDLE SIZES AND MACHINE STITCHES TO THE INCH

TYPES OF FABRICS	THREAD SIZES	NEEDLE SIZES	MACHINE STITCHES PER INCH	
			Inside Seams	Top Stitching
Fine materials comparable to net, mousseline, chiffon, silk, organza, nylon, silk velvet, rayon sheers.	100 Cotton 00 and 000 Silk	9	15-20	20-30
Sheer materials comparable to lawn, dimity, voile, batiste, rayon sheers, rayon crepe, silk crepe.	80 to 100 Cotton 0 Silk	11	12-15	15-20
Lightweight materials comparable to gingham, chambray, sheer wool crepe, taffeta.	50 Mercerized 60 to 80 Cotton A Silk	14	12	15-18
Medium lightweight materials comparable to poplin, pique, percale, shirt, tulle, bengaline, wool flannel, wool crepe, wool jersey.	50 Mercerized 50 to 70 Cotton A or B Silk	14	12	15-16
Medium heavy materials comparable to crash, gabardine, rep, corduroy, velveteen, coatings, suitings.	50 Mercerized 40 to 50 Cotton C Silk	16	10	12
Heavy materials comparable to sailcloth, sturdy denim, ticking, drill cloth, heavy coating.	Heavy Duty Merc. 30 to 40 Cotton D Silk	18	8	10
Plastic materials.	Mercerized Cotton	11	10	12

When ordering needles, always specify "Class and Variety 15 x 1" and state the size and quantity required.

Fig. 9. Winding the Bobbin



on the bed and through one of the holes in the left side of the bobbin 4 from the inside.

If bobbin does not wind evenly, loosen screw which holds bobbin winder tension bracket 3, Fig. 9 in position. Move bracket to the left if bobbin winds high on the right; move bracket to the right if bobbin winds high on the left. When bracket is properly centred, thread will wind evenly across bobbin. Tighten tension bracket screw.

Tighten knurled screw B. Remove the bobbin from the spindle. Stop winding the thread just before it reaches the rim of the bobbin. Pull the bobbin winder away from the belt. Allow tension discs to control flow of thread so that it winds on the bobbin in uniform, level rows.

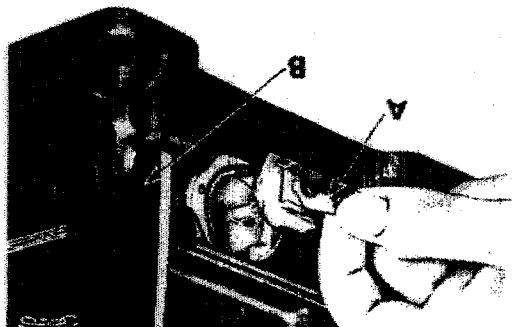
End of thread must be held until it breaks off. Hold end of the thread and press the foot controller pedal as for sewing.

Press the bobbin winder pulley down against the belt. Place spool of thread on spool pin 1. Lead thread into thread guide 2, then under and between the tension discs 3 as far as it will go.

To stop motion of needle, hold hand wheel A, Fig. 9, and loosen knurled screw B, by turning it toward you. Place bobbin on bobbin winder spindle as far as it will go.

TO WIND THE BOBBIN

Fig. 8. Removing the Bobbin Case



Raise thread take-up lever 6, Fig. 15, to its highest position. Raise bed extension B, Fig. 8. Grasp bobbin case latch A, Fig. 8, and withdraw bobbin case. Release latch and bobbin will drop out.

TO REMOVE THE BOBBIN

Fig. 29. End View, Showing Oiling Points

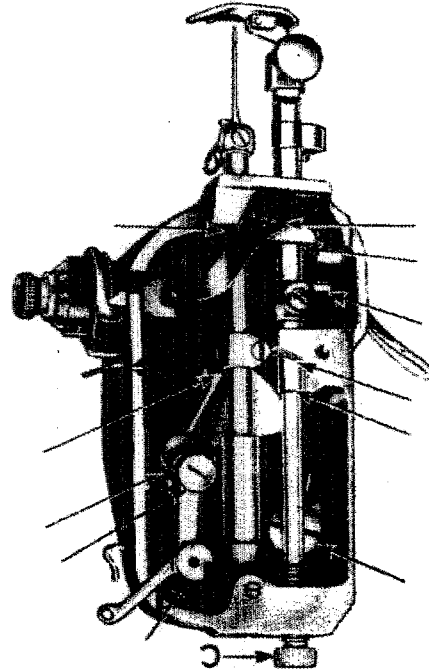
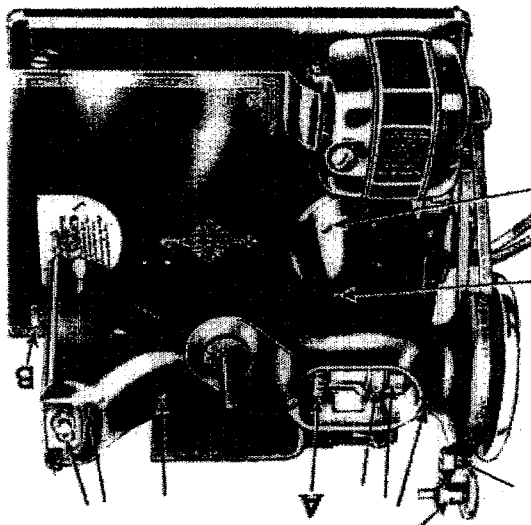


Fig. 28. Rear View, Showing Oiling Points



To insure easy running, the machine requires oiling and if used continuously, it should be oiled each day. With moderate use, an occasional oiling is sufficient. Oil should be applied at each of the places indicated in Figs. 28, 29, 30 and 31. One drop of oil at each point is sufficient. Oil holes are provided in the machine for bearings which cannot be directly reached. Turn back the cover at the top of the machine and oil the moving parts inside the arm as indicated in Fig. 28, and occasionally apply a small quantity of Motor Lubricant to the teeth of the gear A, Fig. 28, then replace the cover.

TO OIL THE MACHINE

Remove face plate thumb screw B, Fig. 28, and the face plate. Put one drop of oil into each of the oil holes and hinge joints, as indicated in Fig. 29, then replace the face plate and thumb screw.

TO OIL THE HOOK MECHANISM

Occasionally apply a drop of oil at the hook bearing indicated by X, in Fig. 30.

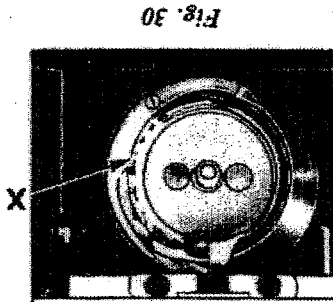


Fig. 30

NEEDLES AND THREAD

This machine uses a 15 x 1 needle.
 Sizes 9, 11, 14, 16 and 18.

For perfect stitching, select correct needle and thread to correspond with fabric according to table on page 29. Be sure to use like threads for both needle and bobbin.

NEEDLE INSERTION

Raise needle bar to highest point by turning hand wheel toward you.

Loosen needle clamp screw (A).

Insert needle upward into clamp as far as it will go, with flat side of needle to left.

Tighten needle clamp screw.

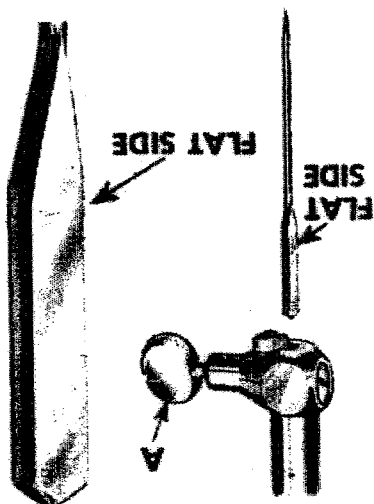


Fig. 14. Positioning of Needle in Needle Clamp

UPPER THREADING

Raise take-up lever 6 to its highest position.
 Place spool of thread on spool pin
 Lead thread into thread guide 1
 Down, under and from right to left between tension discs 2
 Hold spool tightly and pull thread up against take-up spring 4 until it enters retaining fork 3
 Pass thread up and back of thread guide 5 From right to left through hole in take-up lever 6
 Down through eyelet 7
 Into wire thread guide 8
 Into guide 9 in needle clamp
 From right to left through eye of needle.
 Draw about two inches of thread through eye of needle.

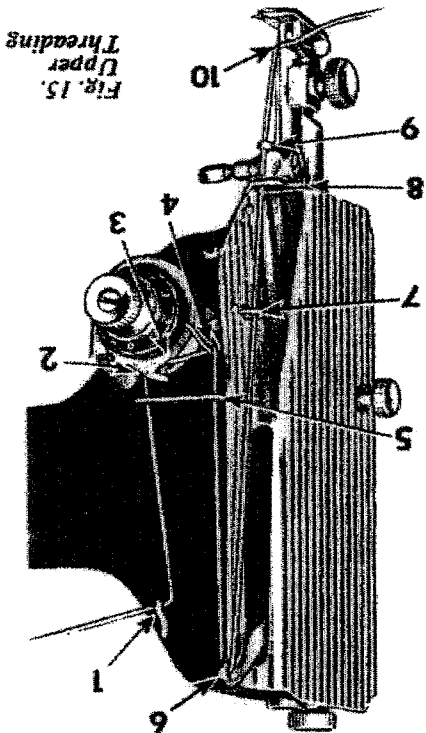


Fig. 15. Upper Threading

When the tension on the bobbin thread seldom necessary to change it, as a correct stitch can usually be obtained by varying the tension on the needle thread.

TO DISASSEMBLE THE
NEEDLE THREAD TENSION

Turn the thumb nut B, Fig 24, to the left until it stops at "0" on the numbered dial, then press in the dial to disengage the pin C in the thumb nut from the dial, and remove the thumb nut and the dial, stop washer K, tension spring F, indicator G and tension disc assembly H which includes the thread take-up spring, thread guard plate and two discs.

NOTE—It is not necessary to remove the stud O, Fig. 24, from the machine arm in order to disassemble the thread

TO REASSEMBLE THE
NEEDLE THREAD TENSION

First make sure that the tension releasing pin J, only the end of which is shown in Fig. 24, is in place in the stud O.

Place the two tension discs L, Fig. 25, with the flat thread-bearing sides of the discs together in position on the thread guard M. Then pass the eye-

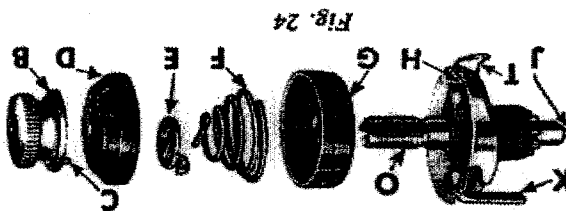


Fig. 24

tension. It is shown removed, in Fig. 24, only to illustrate correct order of assembly.

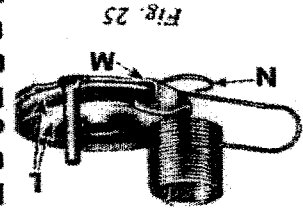


Fig. 25

Let N of the thread take-up spring under the thread guard, having the coils of the spring above the tension discs as shown in Fig. 27.

Guide the tension disc assembly on to stud so that the extension K, Fig. 24, of the thread guard enters the hole in the machine arm, and the tail (inside the coil) of the thread take-up spring enters one of the grooves in the stud. Next replace the indicator with the large open side facing the end of the stud so that the plus and minus marks will be at the top (with the minus sign at the left) and hold the parts, thus assembled, against the shoulder of the stud. Then insert the tension spring F, Fig. 24, in the indicator with the first (half) coil of the spring straddling the

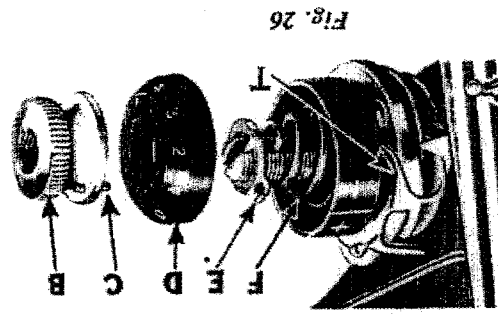


Fig. 26

lower half of the stud. Guide the stop washer E on to the stud so that the extension will be above the tension stud. If the spring and stop washer are in correct position, the extension S will clear the first (half) coil of the tension spring as shown in Fig. 27.

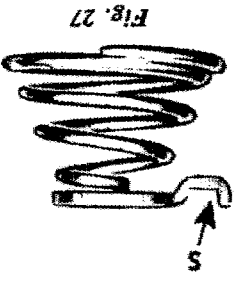


Fig. 27

with the number designating the desired length of stitch and screw the thumb nut B inward until it touches the stitch indicator plate.

The machine will now make the indicated number of stitches to the inch in either a forward or reverse direction, depending upon whether the lever C is at its lowest or highest position.

BASTING

The longest stitch made by the machine, No. 6 on the stitch indicator, is found satisfactory for basting. These basting stitches can be easily removed by clipping every sixth stitch and withdrawing the long continuous thread.

Machine basting is firmer, more even, and much quicker than hand basting.

TO REGULATE THE PRESSURE ON THE MATERIAL

Medium light weight fabrics require an intermediate pressure. If sewing fine silk or filmy fabrics, lighten pressure by turning thumb screw C, Fig. 29, page 10, on top of the machine over to the left so that it screws upward. If sewing heavy napped fabrics, increase the pressure by turning this thumb screw over to the right so that it screws downward. The pressure should be only heavy enough to prevent side creeping of the material and still obtain a uniform stitch.

Pile fabrics require a lighter pressure than their appearance of thickness would indicate, and stitching should be in the direction of the nap on napped fabrics and in the direction of the pile on pile fabrics.

TO REGULATE THE LENGTH OF STITCH

The machine makes from 6 to 30 stitches to the inch, as indicated by the numerals on the stitch indicator plate A, Fig. 19. The approximate number of stitches to the inch that the machine is set to make is indicated by the number which is in line with the stitch regulator lever C, Fig. 19.

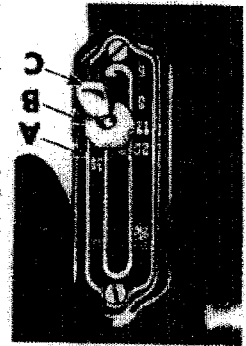


Fig. 19

To change the length of stitch, screw the thumb nut B, Fig. 19 away from the stitch indicator plate A as far as it will go. Then move the stitch regulator lever C until it is in line

TO SEW BIAS SEAMS

Use a shorter stitch when sewing bias or curved seams to increase the elasticity of the seam and to prevent seam failure under strain. No change in tensions is required.

TO REGULATE THE DIRECTION OF FEED

To move the material from you, push down the stitch regulator C, Fig. 19, page 6 to the numeral of stitch desired.

To feed the material toward you, raise the stitch regulator to the point where it will make the desired length of stitch. The direction of feed can be reversed at any point of a seam without removing work from machine. The reverse feed makes it easy to "back stitch" and to fasten ends of seams.